

WHITE PAPER

The Value Proposition of Commercially Supported Linux

Sponsored by: Novell

Al Gillen

Brett Waldman

December 2008

EXECUTIVE SUMMARY

Deployments of Linux server operating environments to support a wide variety of workloads have become commonplace in today's enterprise. These deployments range from basic network and Web infrastructure to enterprise business applications, and they have been accompanied by a surprisingly broad collection of Linux distributions. IDC research has found that customers commonly deploy both commercially supported Linux distributions and distributions not backed up by commercially supported subscriptions into the same environment.

IDC research finds that there is a value proposition associated with using a commercially supported Linux distribution to support customer datacenter workloads, particularly for enterprise customers. IDC believes the value proposition of commercially supported distributions is often overlooked among those sites that are using nonpaid or self-supported Linux distributions.

We recognize that there are situations where nonpaid or self-supported Linux makes sense for corporations, especially within organizations that invest heavily in IT to produce sophisticated custom applications and system configurations designed to produce a competitive advantage. These organizations typically have the technical skills required to support the Linux kernel and the layered software packages, and they have the motivation to put those skills to good use.

IDC believes the trade-off point between using a nonpaid distribution and a commercially supported distribution exists where the relative criticality of a workload increases to the point that an outage of a given service causes secondary impacts on employees who rely on that system. In numerous IDC research studies, cost-of-ownership evaluations have found that the costs associated with idled line-of-business workers or disabled online processes can quickly lead to enormous costs that far exceed the internal IT costs associated with returning the system to operation, not to mention significantly exceeding the cost of commercial support for that system.

IDC makes the following recommendations regarding the use of Linux in commercially supported and self-supported forms:

- ☒ **Recognize the value proposition of commercially supported Linux.** Most IT organizations are not in the business of building and supporting operating systems. These organizations more typically are charged with delivering the information technology application services and productivity tools that other departments and end users within their company need to accomplish the organization's primary business goals. For most IT organizations, the goal is to

enable the company to be a better, more competitive business. Supporting and maintaining an operating system can often be a distraction that can be more effectively outsourced.

- ☒ **Commercial Linux support vendors are in it for the long haul.** Working with a commercial Linux distribution vendor gives IT departments the opportunity to outsource some of the operating systems expertise to an outside provider, ensuring good continuity during staffing transitions. Of considerably greater importance is the attraction that commercial Linux distributions provide to independent software vendors (ISVs). IDC notes that ISVs will typically develop for a very limited number of operating system variations. In the Linux market, this typically means two or three distributions are supported by ISVs. Other distributions are not tested and are not supported by these ISVs.

- ☒ **Commercial Linux ensures better compatibility, interoperability, and application support.** One of the benefits associated with commercial Linux distributions is that the commercial providers typically are active within the greater industry, will work to promote interoperability and manageability, and will certify hybrid system combinations. Today, one of the trends IDC is seeing is the testing of Linux and other operating systems, including Windows, aboard nonnative hypervisors. Major players in the industry, such as Novell, Microsoft, VMware, Citrix, and others, are working together to ensure that customers are running guest operating systems from companies such as Novell and Microsoft that are tested and fully supported when deployed aboard commercial hypervisors. This commercial testing process typically does not take place on noncommercially supported Linux distributions or noncommercial hypervisors, nor are there agreements to provide interoperability and cross-platform management tools for noncommercial Linux operating systems.

- ☒ **Consider the use scenarios.** Nonpaid or self-supported Linux operating systems do have a meaningful value proposition in some environments, such as development environments. In addition, security, networking, and Web infrastructure also have a strong affinity with nonpaid operating systems. Email, on the other hand, shows an interestingly strong balance between paid and nonpaid deployments, while data warehouse, data mining, and OLTP — all business-critical applications — favor paid operating systems for deployments. IDC believes that the risks associated with using self-supported Linux can potentially outweigh the short-term cost savings of not paying for subscriptions or support services for these higher-profile workloads.

We believe that a decision to utilize a noncommercial, self-supported form of Linux is a choice that often will be made on the wrong basis. We fully believe that there are some scenarios where a noncommercially supported Linux distribution is an acceptable solution and fulfills a legitimate requirement. On the other hand, we also believe that for mainstream business workload deployments, including infrastructure servers supporting legitimate and critical business requirements, the right choice is to deploy a commercially supported form of Linux.

IN THIS WHITE PAPER

This IDC White Paper presents IDC's perspective on the pros and cons associated with deployments of nonpaid or self-supported Linux into end-user environments and the value proposition associated with using a commercial Linux distribution.

SITUATION OVERVIEW

Deployments of Linux server operating systems as a foundation for business-oriented workloads continue to experience a higher growth rate than the original (and still most widely deployed) workload on Linux — IT and Web infrastructure.

History has shown that upstart operating systems, particularly aboard a commodity platform such as x86 servers, tend to first penetrate workload types that are less critical and more cost sensitive. These workload types tend to have a good fit with low-cost servers and low-cost operating systems.

Once the operating system has established a beachhead in these price-sensitive workload areas, it has the opportunity to build credibility and slowly take on increasingly important workloads.

This evolutionary penetration took place with Windows in the 1990s, as that operating system competed with better-established servers running Unix and NetWare operating systems. Linux is following a similar path into corporate accounts today.

The next phase of growth, once the operating system has established credibility in those infrastructure workloads, is to begin to capture instances of business-oriented computing workloads such as database or a limited-scale line-of-business application. Initially, an upstart operating system is more likely to be tested in smaller-scale deployments such as for a department or workgroup solution. These smaller-scale deployments may be cost sensitive as well, leading to a good fit with the emerging operating system.

The final phase of mainstream adoption comes after the operating system has established credibility in a departmental or workgroup setting and leads to increasingly critical and more scalable deployments to support enterprise applications, including database, enterprise resource planning (ERP) software, and other general business processing. These workloads historically have been the domain of competitive operating environments, particularly Unix solutions from a variety of major vendors.

IDC research finds that new deployments of Linux server operating systems aboard server hardware have shifted in favor of increasingly broad deployments of Linux for these general-purpose business applications. As recently as 2004, under 16% of new Linux server deployments were used for general business processing and decision support, while Linux Web and IT infrastructure deployments had just crossed their high point of 54% in 2003. By comparison, in 2007, Linux servers supporting business processing and decision support workloads accounted for 18% of total Linux server deployments, and infrastructure deployments had contracted to 52%. IDC's forecasts for these workloads show that business decision workloads will capture another percentage point of share by 2011.

This top-line review takes into consideration the association between Linux deployments aboard new server hardware. However, if the deployment data was to be parsed with segmentation of commercially supported enterprise distributions of Linux versus noncommercial, free (and self-supported) Linux distributions, the workload mix will shift to show an association between enterprise-oriented workloads aboard enterprise Linux distributions and lower-value, cost-sensitive workloads on nonpaid Linux distributions. That is, customers that have a higher investment in their application deployments have a greater potential to also use a commercially supported Linux distribution.

THE VALUE PROPOSITION OF COMMERCIAL LINUX DISTRIBUTIONS

IDC has conducted numerous research efforts to understand the trends surrounding Linux adoption activities. From the first large-scale study IDC conducted in 1999, which measured the use of commercially supported Linux and nonpaid, self-supported Linux distributions, to a detailed study evaluating the use profiles for nonpaid Linux conducted in 2007, we have found that a relationship exists between the workloads being supported and the investment an organization is willing to make in a Linux operating system.

Workload Correlations

Figure 1 illustrates the association between common Linux workloads and the makeup of the underlying Linux distribution in use. This comparison shows the relative pairing of these workloads to paid Linux distributions and nonpaid Linux workloads. The data is sorted from left to right, showing the largest to the smallest differential in deployment affinity.

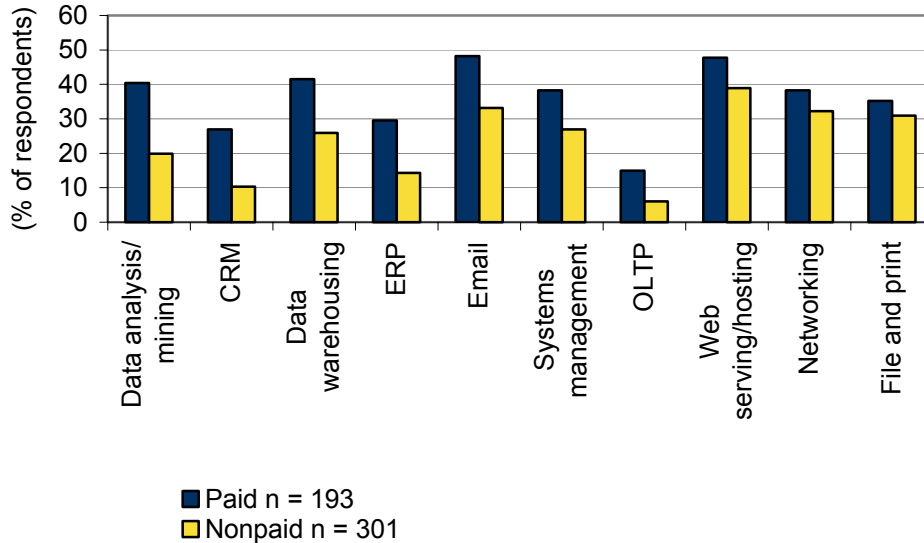
As shown in Figure 1, it is clear that customers that are deploying some of the most critical business workloads have a dramatically higher likelihood of building that deployment on a commercially supported distribution. The differences are stark: For data analysis and data mining software, customers are 20 percentage points more likely to use a commercial Linux distribution than a nonpaid, self-supported distribution. Likewise, CRM and data warehousing solutions are 16 to 17 percentage points more likely to be installed on a commercial Linux foundation.

By contrast, traditional Linux favorites such as Web and infrastructure workloads show significantly smaller differentials. Web workloads are 9 percentage points more likely to be built on a commercial Linux foundation, while networking and file/print workloads are close to parity in terms of the installations aboard commercial and nonpaid Linux distributions.

FIGURE 1

Paid Versus Nonpaid Workload Association

Q. We would like to focus on the tasks associated with these installations. Which of the following workloads are running on each operating system?



Source: IDC's Nonpaid Linux Multiclient Study, 2007

Virtualization Deployment

Another interesting metric that is highly relevant given today's intense interest in hypervisor software is the makeup of guest installations on virtualized servers. Figure 2 shows the close correlation between the virtualization density and the probability of using a commercially supported Linux distribution.

Figure 2 shows that the deployments of Linux in a virtualized environment are most widely used aboard physical servers hosting between two and five virtual machines. But this demarcation point also represents another shift — where the probability of using a commercially supported Linux distribution surpasses that of using a nonpaid Linux distribution. That is, as the density of the virtual machines increases, customers are increasingly likely to use a commercial Linux distribution.

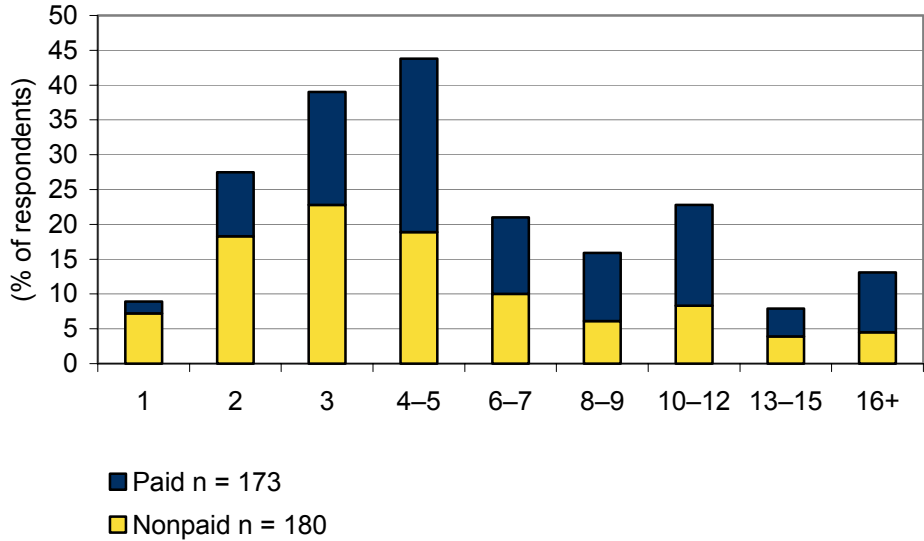
This observation, of course, makes sense because a customer that has invested in a server to support a large number of guests has a lot of "eggs in one basket," making that configuration into a mission-critical server simply because of the variety and number of discrete workloads that are likely housed by that system.

It is also important to note that major commercial Linux distributions such as SUSE Linux Enterprise Server from Novell include support for unlimited virtual machine guests as well as the virtualization host (Xen) aboard a single physical server.

FIGURE 2

Linux Virtual Machine Density

Q. *What is the average number of virtual machines per physical server aboard the servers that are running virtualization software?*



Source: IDC's Nonpaid Linux Multiclient Study, 2007

Motivations for Using Paid Linux

Figure 3 shows the factors that users rank as most important or influential to making the decision to deploy a commercial Linux distribution versus a nonpaid Linux distribution.

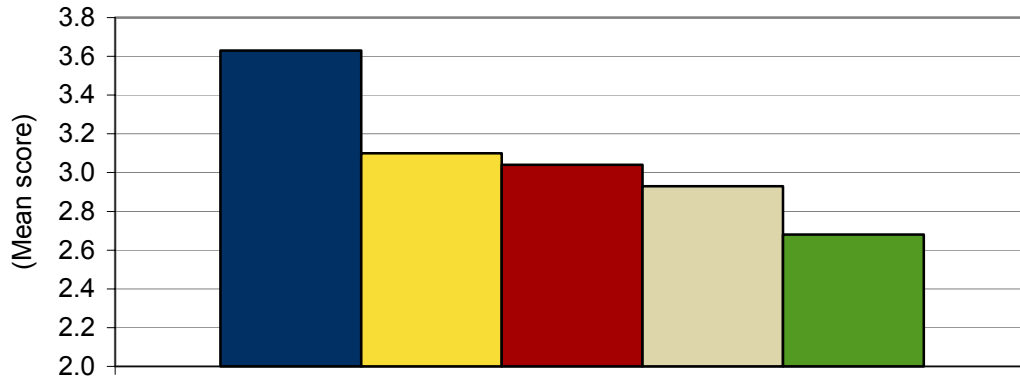
By far, the most important factor ranked by Linux users was the relative criticality of the workload.

The second- and third-ranked factors, "Support from a commercial provider is justified" and "Operating systems have long life cycle, therefore need long-term support," illustrate a mature recognition that commercial Linux vendors deliver a value proposition that customers can measure.

FIGURE 3

Motivations for Using Paid Linux

Q. On a scale of 1 to 5, where 1 is a low motivation and 5 is a high motivation, how would you rate the following reasons for using paid/supported Linux operating systems instead of nonpaid operating systems?



- Workload being supported is critical
- Support from a commercial provider is justified
- Operating systems have long life cycle, therefore need long-term support
- Have sitewide licensing in place
- Don't have in-house skills to support Linux OS

n = 231

Source: IDC's Nonpaid Linux Multiclient Study, 2007

FUTURE OUTLOOK

The rapid transition to embrace a virtualized server infrastructure has the potential to further enhance the value proposition that users perceive with a commercial Linux distribution and the accompanying support subscription. IDC research has found that as guest-to-host ratios increase, there is a growing attach rate for commercial Linux distributions versus nonpaid operating systems. When an organization has an above-average number of guests being supported atop a hypervisor, the likelihood of that operating system being a commercially supported or paid operating system is higher.

We believe that this relationship exists because respondents that pay a premium cost to buy a heavily provisioned, hypervisor-capable server will also have a significantly higher propensity to adopt costly management tools that leverage virtualization software. Because these customers have larger overall investments and are highly focused on deploying a solution that fits their IT requirements, having a longer life cycle is part of the base expectations. These same customers are likely to have

no patience for finger-pointing between software providers, so by using top-of-the-line, interoperable products, there is a higher probability that the operating system, virtualization software, and applications have been more comprehensively tested and configured for long-term deployments than low-cost solutions might be.

As business-oriented workloads continue to grow in volume aboard Linux servers, these workloads will tend to force customers to adopt commercial Linux distributions, since these ISVs are highly unlikely to endorse and support deployments aboard noncommercial Linux distributions that have configurations that are unknown to the application software ISVs.

CHALLENGES/OPPORTUNITIES

When considering the deployment choice of a commercial Linux distribution and noncommercial, self-supported Linux, customers should consider many factors, including those noted in this section.

Challenges

- Of particular concern in mature geographies, regulatory compliance is a critical issue — whether it's Sarbanes-Oxley, the Health Insurance Portability and Accountability Act (HIPAA), or other industry-specific regulatory requirements such as the emerging Payment Card Industry Data Security Standard — that often will cause customers to favor commercially supported Linux distributions.
- Does your organization have the skills in-house to support a Linux distribution without the help of a full-time Linux distribution ISV?
- If you have the in-house skills, can you ensure that your team can manage, maintain, and fix critical problems in a timely manner? Will your organization live up to expectations from the CIO or line-of-business executives? Can you meet existing and future service-level agreements without external help?
- If you are deploying commercial application software, will the ISV that provides that product to you support the deployment of that application on a noncommercial, self-supported Linux distribution?
- Will noncommercial Linux distributions provide the level of documentation required, good interoperability with other operating systems, and non-Linux management tools and applications hosted on non-Linux servers?
- Is there a positive cost/benefit ratio that comes from using a noncommercial Linux distribution in your organization?

Opportunities

- ☒ Where workload requirements and service-level commitments are appropriately managed, there is a value proposition for noncommercial Linux to serve corporate needs. Judicious use of noncommercial Linux is a critical requirement.
- ☒ Commercial Linux support providers have an opportunity to reinforce the value proposition that their products deliver. Communicating and delivering on promised support levels will help end-user organizations resolve or eliminate critical issues in a relatively short amount of time using commercial distribution vendors' expertise.
- ☒ Better interoperability is another benefit that comes from commercial Linux distributions. Commercial Linux providers typically are active in the industry and work to improve interoperability and cross-platform management. Major players in the industry, such as Novell and Microsoft, along with VMware, Citrix, and others, are working together to ensure that customers are not left in the middle from a support perspective.
- ☒ Application support represents a major opportunity for a value proposition that can be delivered by commercial Linux providers. Working closely with ISVs to build out application portfolios, commercial Linux distribution providers can significantly extend the value proposition that a commercial Linux product can offer.

CONCLUSION

IDC believes the trade-off point between using a nonpaid distribution and a commercially supported distribution exists where the relative criticality of a workload increases to the point that an outage of a given service causes secondary impacts on employees who rely on that system.

Most IT organizations are not in the business of building and supporting operating systems; rather, they are charged with delivering the information technology application services and productivity tools that other departments and end users within their company need to accomplish the organization's primary business goals. For most IT organizations, the goal is to enable the company to be a better, more competitive business. By comparison, most commercial Linux providers are building their business around a long-term support program designed to maximize the value, performance, and functionality that their subscribers can enjoy.

IDC believes that in many cases, a noncommercially supported Linux distribution can fill a set of requirements that an organization may have. We also believe that for mainstream business workload deployments, including infrastructure servers supporting legitimate and critical business requirements, the right choice is to deploy a commercially supported form of Linux, especially in enterprise datacenter environments.

DEFINITIONS

"Paid or Supported" Operating Systems

- Licensed for use through an outright purchase of use rights
 - Subscription agreement that covers support services
 - Bundled with hardware including some level of support
-

"Nonpaid or Self-Supported" Operating Systems

- No subscription or support contract
 - Expired support contract
 - Secondary copy of a paid version (not covered by the support subscription)
 - Nonlicensed (sometimes may be used in a nonlegitimate scenario)
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